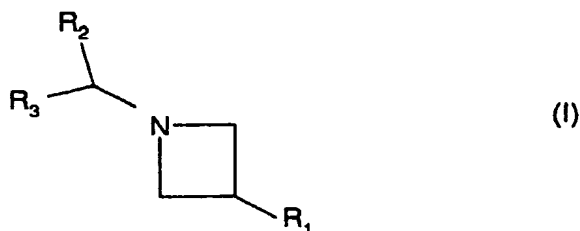


CLAIMS

1. A method of treating a disorder that responds to treatment with cannabinoid antagonists selected from the group consisting of schizophrenia,
5 Parkinson's disease, Huntington's chorea, Raynaud's syndrome, alcohol abuse and pain, this method comprising administering to a mammal in need of such treatment an effective amount to treat said disorder of a compound of formula (I):



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in which

R_1 represents a radical $-NHCOR_4$ or $-N(R_5)-Y-R_6$,

Y is CO or SO_2 ;

- 15 R_2 and R_3 , which are identical or different, represent either an aromatic radical selected from phenyl, naphthyl and indenyl, these aromatic radicals being unsubstituted or substituted with one or more halogen atoms or alkyl, alkoxy,
20 formyl, hydroxyl, trifluoromethyl, trifluoromethoxy, $-CO-alk$, cyano, $-COOH$, $-COOalk$, $-CONR_7R_8$, $-CO-NH-NR_9R_{10}$, alkylsulfanyl, alkylsulfinyl, alkylsulfonyl, alkylsulfanylalkyl, alkylsulfinylalkyl, alkylsulfonylalkyl, hydroxyalkyl or $-alk-NR_7R_8$
25 radicals; or a heteroaromatic radical selected from benzofuryl, benzothiazolyl, benzothienyl, benzoxazolyl, chromanyl, 2,3-dihydrobenzofuryl, 2,3-dihydrobenzothienyl, pyrimidinyl, furyl, imidazolyl, isochromanyl, isoquinolyl, pyrrolyl,
30 pyridyl, quinolyl, 1,2,3,4-tetrahydroisoquinolyl,

thiazolyl and thienyl rings, it being possible for these heteroaromatic radicals to be unsubstituted or substituted with a halogen atom or an alkyl, alkoxy, hydroxyl, trifluoromethyl, trifluoromethoxy, cyano, -COOH, -COOalk, -CO-NH-NR₉R₁₀, -CONR₇R₈, -alk-NR₉R₁₀, alkylsulfanyl, alkylsulfinyl, alkylsulfonyl, alkylsulfanyllalkyl, alkylsulfinylalkyl, alkylsulfonylalkyl or hydroxyalkyl radical;

R₄ represents a radical -alk-SO₂-R₁₁, -alk-SO₂-CH=CH-R₁₁, Het substituted with -SO₂-R₁₁ or phenyl substituted with -SO₂-R₁₁ or -alk-SO₂-R₁₁; R₅ represents a hydrogen atom or an alkyl radical; R₆ represents a phenylalkyl, Het or Ar radical;

R₇ and R₈, which are identical or different, represent a hydrogen atom or an alkyl radical or alternatively R₇ and R₈ together form with the nitrogen atom to which they are attached a 3- to 10-membered saturated mono- or bicyclic heterocycle, optionally further having another heteroatom selected from oxygen, sulfur and nitrogen and being optionally substituted with one or more alkyl radicals;

R₉ and R₁₀, which are identical or different, represent a hydrogen atom or an alkyl, -COOalk, cycloalkyl, alkylcycloalkyl, -alk-O-alk or hydroxyalkyl radical or alternatively R₉ and R₁₀ together form with the nitrogen atom to which they are attached a 3- to 10-membered saturated or unsaturated mono- or bicyclic heterocycle, optionally further having another heteroatom selected from oxygen, sulfur and nitrogen and being optionally substituted with one or more alkyl, -COalk, -COOalk, -CO-NHalk, -CS-NHalk, oxo, hydroxyalkyl, -alk-O-alk or -CO-NH₂ radicals;

R₁₁ represents an alkyl, Ar or Het radical;
Ar represents a phenyl, naphthyl or indenyl
radical, these radicals being optionally
substituted with one or more halogen atoms or
5 alkyl, alkoxy, cyano, -CO-alk, -COOH, -COOalk,
-CONR₁₂R₁₃, -CO-NH-NR₁₄R₁₅, alkylsulfanyl,
alkylsulfinyl, alkylsulfonyl, -alk-NR₁₄R₁₅, -NR₁₄R₁₅,
alkylthioalkyl, formyl, hydroxyl, hydroxyalkyl,
Het, -O-alk-NH-cycloalkyl, OCF₃, CF₃, -NH-CO-alk,
10 -SO₂NH₂, -NH-COCH₃, -NH-COOalk or Het radicals or
alternatively, a fused ring containing a 3-10
membered Het radical is formed on 2 adjacent
carbon atoms, with a dioxymethylene, said Het
being an unsaturated or saturated mono- or
15 bicyclic heterocycle having one or more
heteroatoms selected from oxygen, sulfur and
nitrogen optionally substituted with one or more
halogen atoms or alkyl, alkoxy, vinyl,
alkoxycarbonyl, oxo, hydroxyl, OCF₃ or CF₃
20 radicals, the nitrogen-containing heterocycles
being optionally in their N-oxidized form;
R₁₂ and R₁₃, which are identical or different,
represent a hydrogen atom or an alkyl radical or,
alternatively, R₁₂ and R₁₃ together with the
25 nitrogen atom to which they are attached form a 3-
to 10-membered saturated mono- or bicyclic
heterocycle, optionally further having another
heteroatom selected from oxygen, sulfur and
nitrogen and being optionally substituted with one
30 or more alkyl radicals;
R₁₄ and R₁₅, which are identical or different,
represent a hydrogen atom or an alkyl, -COOalk,
cycloalkyl, alkylcycloalkyl, -alk-O-alk or
hydroxyalkyl radical or alternatively R₁₄ and R₁₅
35 together form with the nitrogen atom to which they

are attached a 3- to 10-membered saturated or unsaturated mono- or bicyclic heterocycle, optionally further having another heteroatom selected from oxygen, sulfur and nitrogen and being optionally substituted with one or more alkyl, -COalk, -COOalk, -CO-NHalk, -CS-NHalk, oxo, hydroxyalkyl, -alk-O-alk or -CO-NH₂ radicals; alk represents an alkyl or alkylene radical; the alkyl and alkylene radicals and portions and the alkoxy radicals and portions are in the form of a straight or branched chain having 1 to 6 carbon atoms and the cycloalkyl radicals have 3 to 10 carbon atoms; or the optical isomers thereof or pharmaceutically acceptable salts thereof.

2. The method of claim 1 wherein, in the compound of formula (I), Het represents a heterocycle selected from benzimidazole, benzoxazole, benzothiazole, benzothiophene, cinnoline, thiophene, quinazoline, quinoxaline, quinoline, pyrazole, pyrrole, pyridine, imidazole, indole, isoquinoline, pyrimidine, thiazole, thiadiazole, piperidine, piperazine, pyrrolidine, triazole, furan, tetrahydroisoquinoline, tetrahydroquinoline, these heterocycles being optionally substituted with one or more substituents selected from halogen, alkyl, alkoxy, vinyl, alkoxycarbonyl, oxo, hydroxyl, OCF₃ and CF₃ radicals.

3. The method of claim 1 wherein, in said compound of formula (I),
R₁ represents a radical -N(R₅)-Y-R₆;
Y is SO₂;
R₂ represents either a phenyl which is

unsubstituted or substituted with one or more halogen atoms or alkyl, alkoxy, trifluoromethyl, trifluoromethoxy, cyano, $-\text{CONR}_7\text{R}_8$, hydroxyalkyl or $-\text{alk}-\text{NR}_7\text{R}_8$ radicals; or a heteroaromatic radical selected from pyridyl, pyrimidyl, thiazolyl and thienyl rings, it being possible for these heteroaromatic radicals to be unsubstituted or substituted with a substituent selected from halogen, alkyl, alkoxy, hydroxyl, trifluoromethyl, trifluoromethoxy, $-\text{CONR}_7\text{R}_8$, $-\text{alk}-\text{NR}_9\text{R}_{10}$, alkylsulfanyl, alkylsulfinyl, alkylsulfonyl and hydroxyalkyl radicals;

R_3 represents either a phenyl which is unsubstituted or substituted with one or more substituents selected from halogen, alkyl, alkoxy, trifluoromethyl, trifluoromethoxy, cyano, $-\text{CONR}_7\text{R}_8$, hydroxyalkyl and $-\text{alk}-\text{NR}_7\text{R}_8$ radicals; or a heteroaromatic radical selected from pyridyl, pyrimidyl, thiazolyl and thienyl rings, it being possible for these heteroaromatic radicals to be unsubstituted or substituted with a substituent selected from halogen, alkyl, alkoxy, hydroxyl, trifluoromethyl, trifluoromethoxy, $-\text{CONR}_7\text{R}_8$, $-\text{alk}-\text{NR}_9\text{R}_{10}$, alkylsulfanyl, alkylsulfinyl, alkylsulfonyl and hydroxyalkyl radical;

R_5 represents a hydrogen atom or an alkyl radical; R_6 represents a naphthyl, phenylalkyl, Het or phenyl radical optionally substituted with one or more substituents selected from halogen, alkyl, alkoxy, cyano, $-\text{CO}-\text{alk}$, COOalk , $-\text{CONR}_{12}\text{R}_{13}$, $-\text{alk}-\text{NR}_{14}\text{R}_{15}$, $-\text{NR}_{14}\text{R}_{15}$, hydroxyl, hydroxyalkyl, Het, OCF_3 , CF_3 , $-\text{NH}-\text{CO}-\text{alk}$, $-\text{SO}_2\text{NH}_2$ and $-\text{NH}-\text{COOalk}$ radicals, or alternatively, a fused ring containing a 3-10 membered Het radical is formed on 2 adjacent carbon atoms of said phenyl radical,

with dioxymethylene;

R₇ and R₈, which are identical or different,
represent a hydrogen atom or an alkyl radical or,
alternatively, R₇ and R₈ together with the nitrogen
5 atom to which they are attached form a 3- to 10-
membered saturated mono- or bicyclic heterocycle,
optionally further having another heteroatom
selected from oxygen, sulfur and nitrogen and
being optionally substituted with one or more
10 alkyl radicals;

R₉ and R₁₀, which are identical or different,
represent a hydrogen atom or an alkyl, cycloalkyl,
alkylcycloalkyl or hydroxyalkyl radical or,
alternatively, R₉ and R₁₀ together with the
15 nitrogen atom to which they are attached form a 3-
to 10-membered saturated or unsaturated mono- or
bicyclic heterocycle, optionally further having
another heteroatom selected from oxygen, sulfur
and nitrogen and being optionally substituted with
20 one or more alkyl, oxo or -CO-NH₂ radicals;

R₁₂ and R₁₃, which are identical or different,
represent a hydrogen atom or an alkyl radical or,
alternatively, R₁₂ and R₁₃ together with the
nitrogen atom to which they are attached form a 3-
25 to 10-membered saturated mono- or bicyclic
heterocycle, optionally further having another
heteroatom selected from oxygen, sulfur and
nitrogen and being optionally substituted with one
or more alkyl radicals;

R₁₄ and R₁₅, which are identical or different,
represent a hydrogen atom or an alkyl, cycloalkyl,
alkylcycloalkyl or hydroxyalkyl radical or,
alternatively, R₁₄ and R₁₅ together with the
nitrogen atom to which they are attached form a 3-
35 to 10-membered saturated or unsaturated mono- or

bicyclic heterocycle, optionally further having another heteroatom selected from oxygen, sulfur and nitrogen and being optionally substituted with one or more substituents selected from alkyl, oxo, hydroxyalkyl and $-CO-NH_2$ radicals;

Het represents a 3- to 10-membered unsaturated or saturated mono- or bicyclic heterocycle containing one or more heteroatoms selected from oxygen, sulfur and nitrogen optionally substituted with one or more substituents selected from halogen, alkyl, alkoxy, vinyl, alkoxycarbonyl, oxo and hydroxyl radicals, the nitrogen-containing heterocycles being optionally in their N-oxidized form,

an optical isomer thereof or a pharmaceutically acceptable salt thereof.

4. The method of claim 3 wherein, in the compound of formula (I), Het represents a heterocycle selected from benzimidazole, benzoxazole, benzothiazole, benzothiophene, thiophene, quinazoline, quinoxaline, quinoline, pyrrole, pyridine, imidazole, indole, isoquinoline, pyrimidine, thiazole, thiadiazole, furan, tetrahydroisoquinoline and tetrahydroquinoline, these heterocycles being optionally substituted with one or more substituents selected from halogen, alkyl, alkoxy, vinyl, oxo, hydroxyl, OCF_3 and CF_3 radicals.

5. The method of claim 1 wherein, in the compound of formula (I),

R_1 represents a radical $-N(R_5)-Y-R_6$;

Y is SO_2 ;

R_2 represents either a phenyl which is

unsubstituted or substituted with one or more substituents selected from halogen, alkyl, alkoxy, trifluoromethyl, trifluoromethoxy and hydroxyalkyl radicals; or a heteroaromatic radical selected from pyridyl and pyrimidyl rings, it being possible for these heteroaromatic radicals to be unsubstituted or substituted with a substituent selected from halogen, alkyl, alkoxy, hydroxyl, trifluoromethyl and trifluoromethoxy radicals;

R₃ represents either a phenyl which is unsubstituted or substituted with one or more substituents selected from halogen, alkyl, alkoxy, trifluoromethyl, trifluoromethoxy and hydroxyalkyl radicals; or a heteroaromatic radical selected from pyridyl and pyrimidyl rings, it being possible for these heteroaromatic radicals to be unsubstituted or substituted with a substituent selected from halogen, alkyl, alkoxy, hydroxyl, trifluoromethyl and trifluoromethoxy radical;

R₅ represents a hydrogen atom or an alkyl radical; R₆ represents a naphthyl, phenylalkyl, Het or phenyl radical optionally substituted with one or more substituents selected from halogen, alkyl, alkoxy, -NR₁₄R₁₅, hydroxyl, hydroxyalkyl, OCF₃, CF₃ and -SO₂NH₂ radicals, or alternatively, a fused ring containing a 3-10 membered Het radical is formed on 2 adjacent carbon atoms of said phenyl radical, with dioxymethylene;

R₁₄ and R₁₅, which are identical or different, represent a hydrogen atom or an alkyl, cycloalkyl, alkylcycloalkyl or hydroxyalkyl radical or, alternatively, R₁₄ and R₁₅ together with the nitrogen atom to which they are attached form a 3- to 10-membered saturated or unsaturated mono- or bicyclic heterocycle, optionally containing

another heteroatom selected from oxygen, sulfur and nitrogen and being optionally substituted with one or more substituents selected from alkyl, oxo, hydroxyalkyl and -CO-NH₂ radicals;

5 Het represents a 3- to 10-membered unsaturated or saturated mono- or bicyclic heterocycle containing one or more heteroatoms selected from oxygen, sulfur and nitrogen optionally substituted with one or more halogen, alkyl, alkoxy, vinyl,
10 alkoxycarbonyl, oxo and hydroxyl radicals, the nitrogen-containing heterocycles being optionally in their N-oxidized form, an optical isomer thereof or a pharmaceutically acceptable salt thereof.

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6. The method of claim 5 wherein, in the compound of formula (I), Het represents a heterocycle selected from benzimidazole, benzoxazole, benzothiazole, benzothiophene, thiophene, quinoline, pyrrole,
20 pyridine, pyrimidine, thiazole, thiadiazole, furan, tetrahydroisoquinoline and tetrahydroquinoline, these heterocycles being optionally substituted with one or more substituents selected from halogen, alkyl, alkoxy,
25 vinyl, oxo, hydroxyl, OCF₃ and CF₃ radicals.